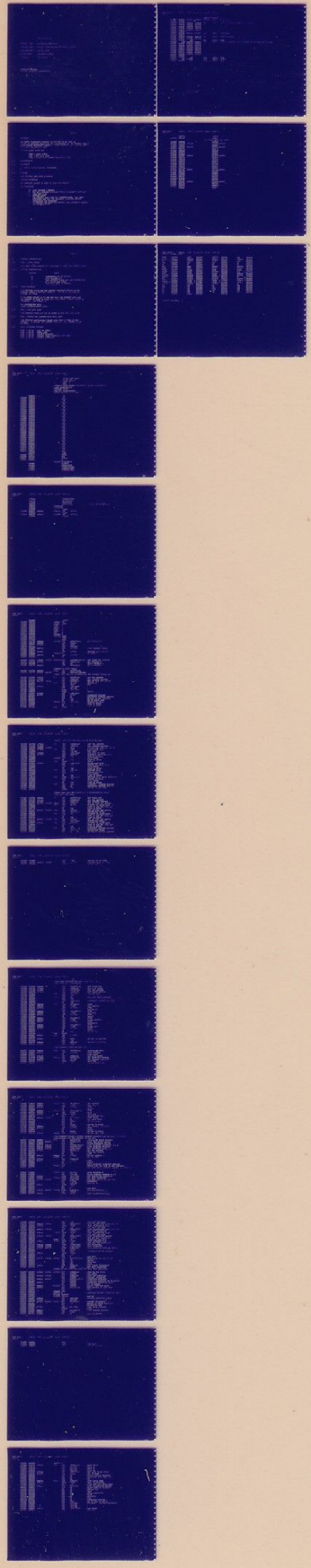


# BM792YC

CARD READER BOOTSTRAP  
MD-11-DZBMC-A  
LOADER

EP-DZBMC-A-DL  
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FICHE 1 OF 1

MAY 1978  
**digital**  
MADE IN USA



IDENTIFICATION

PRODUCT CODE: MAINDEC-11-D2BMC-A-D  
PRODUCT NAME: B4792YC (CARD READER BOOTSTRAP LOADER)  
DATE CREATED: JAN 15, 1972  
MAINTAINER: DIAGNOSTIC GROUP  
AUTHOR: JOHN ADAMS

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1. ABSTRACT

THE DEBMC DIAGNOSTIC PROGRAM IS WRITTEN TO BE USED AS AN AID TO HARDWARE DEBUGGING AND MAINTENANCE OF THE BM792VC MODULE (CARD READER BOOTSTRAP LOADER). THESE PROGRAMS MAY ALSO BE USED AS A DATA RELIABILITY TEST.

THE AVAILABLE TESTS ARE

- PRG0 • LOGIC TESTS
- PRG1 • ROM DATA DUMP
- PRG2 • SINGLE ROM ADDRESS READ DATA LOOP

2. REQUIREMENTS

2.1 EQUIPMENT

- A. PDP 11 FAMILY CENTRAL PROCESSOR
- B.

2.2 STORAGE

THIS PROGRAM USES CORE 0-4040(8)

3. LOADING PROCEDURE

THE ABSOLUTE LOADER IS USED TO LOAD THE PROGRAM

4. USE PROCEDURE

- A1 LOAD ADDRESS • 000200
- B1 SET SR • DESIRED STANDARD PDP-11 DIAGNOSTIC OPTIONS (SEE SECT 6.0)
- C1 DEPRESS START  
THE PROGRAM WILL TYPE OUT INSTRUCTIONS. ALL USER RESPONSES ARE VIA THE KEYBOARD (CARRIAGE RETURN TERMINATES THE RESPONSE)
- D1 TO RESTART THE SELECTED PROGRAM LOAD ADDRESS • 000210 AND DEPRESS START

## 5. PROGRAM DESCRIPTIONS

## 5.1 PRG2 - LOGIC TESTS

THE LOGIC TESTS CONSIST OF 4 ROUTINES TO TEST THE M792-Y8 LOGIC

## 5.1.1 ROUTINE DESCRIPTIONS

ROUTINE	TESTS
T1	ADDRESSABILITY OF 0M792YC
T2	DATA RELIABILITY
T3	THAT 0M792YC TIMES OUT WHEN REFERENCED BY A DATIP BUS CYCLE
T4	THAT DATA READ IS CORRECT

## 5.1.2 ERROR PRINTOUT

IF A ROUTINE FAILS AND THE INHIBIT PRINTOUT SWITCH IS NOT ENABLED (SR13) A PRINTOUT RESULTS, THE PC AT THE TIME OF FAILURE IS TYPED.

IF AN ERROR OCCURS IN T4 THE ROM DATA AND CORRECT DATA AND THE ADDRESS OF EACH IS TYPED OUT (THE ERROR TYPEOUT CANNOT BE DISABLED), THE FORMAT IS

ROM ADDRESS/ROM DATA  
IMAGE ADDRESS\*CORRECT DATA

## 5.2 PRG1 - ROM DATA DUMP

THIS PROGRAM TYPES OUT THE 32 WORDS OF ROM DATA AND HALTS.

## 5.3 PRG2 - SINGLE ROM ADDRESS READ DATA LOOP

THIS PROGRAM CONTINUOUSLY READS DATA FROM A TYPED IN ROM ADDRESS, TO CHANGE THE ADDRESS TYPE IN A NEW ADDRESS. (MUST BE EVEN)

## 6.0 PCP11 STANDARD OPTIONS

SW15 1 OR UP HALT ON ERROR  
SW14 1 OR UP SCOPE LOOP  
SW13 1 OR UP INHIBIT PRINTOUT  
SW12 1 OR UP INHIBIT TRACE TRAPPING (NOT USED)  
SW11 1 OR UP INHIBIT ITERATION

TEST DZBMC  
DZBMCA

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.TITLE TEST DZBMC  
.NLIST SEQ,MC  
.LIST ME  
.ABS  
IM792=YC (CARD READER BOOTSTRAP LOADER) DIAGNOSTIC  
ILOAD ADDRESS=0200  
I DEPRESS START  
IRESTART ADDRESS=0210  
I STACK POINTER IS AT 900

	000000	.00
000000	000002	.02
000002	000000	HALT
000004	000006	.02
000006	000000	HALT
000010	000012	.02
000012	000000	HALT
000014	000016	.02
000016	000000	HALT
000020	000022	.02
000022	000000	HALT
000024	000026	.02
000026	000000	HALT
000030	000032	.02
000032	000000	HALT
000034	000036	.02
000036	000000	HALT
000040	000042	.02
000042	000000	HALT
000044	000046	.02
000046	000000	HALT
000050	000052	.02
000052	000000	HALT
000054	000056	.02
000056	000000	HALT
000060	000062	.02
000062	000000	HALT
000064	000066	.02
000066	000000	HALT
000070	000072	.02
000072	000000	HALT
000074	000076	.02
000076	000000	HALT
	000030	.030
000030	002314	ERROR
000032	000340	340
000034	002224	SCOPEC
000036	000000	0
	104000	IEQUATE STATEMENTS
	104400	HLT=EMT
	177560	SCOPE=TRAP
	177562	TKCSR=177560
	177564	TKDBR=177562
		TPCSR=177564

DL

TEST DZBMC  
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177566  
177776  
177578  
888588  
888888  
888862  
888288  
008288 888167 888622  
888218 888218  
888218 888167 888652  
881888

TPDBR=177566  
PSW=177776  
SR=177578  
STKPTR=588  
TKINTA=67  
TKINTP=62  
      ,=288  
START1: JMP PRMTRS  
      ,=218  
START3: JMP RESTART  
      ,=1888

INITIAL STACK SETTING

```

001000 001000
001002 000040
001004 004000
001006 000000
001010 000000
001012 000000
001014 000000
001016 000000
001020 001100
001022 001572
001024 001720
001026 012706 000500
001032 005067 000020
001036 005737 177570
001042 001411
001044 004567 000740
001050 002534
001052 004567 001050
001056 000000
001060 004567 000732
001064 002560

001066 012767 173200 177722
001074 016700 177750
001100 006300
001102 000170 001020

001106 012706 000500
001112 012767 001066 001160

001120 016700 177672
001124 016701 177650
001130 012767 001172 170640
001136 011003
001140 005720
001142 004067 177630
001146 021010
001150 132020
001152 000005
001154 164067 177624
001160 002700 000002
001164 005301
001166 001363
001170 000403
001172 022620
001174 104000
001176 000757
001200 104400

,01000
WORDS: 32,
IMAGE: 4000
DUMP: 2
LAST: 0
CHAR: 0
TERM: 2
SRT: 0
ROMADD: 2
PRGTAB: PRG0
PRG1
PRG2

PRMTRS: MOV #STKPTR,X6 ;SET STACK PTR
CLR PRGNUM
TST #SR
BEO RESTART
JSR 5,TYPEH ;TYPE MESSAGE 'PRG#
MO
JSR 5,RECD ;RECEIVE DATA AND PUT
;IT HERE
PRGNUM: 0
JSR 5,TYPEH
MO

RESTART:MOV #173200,ROMADD ;GET FIRST ROM ADDRESS
MOV PRGNUM,X0 ;GET PROGRAM #
ASL X0 ;SHIFT PROGRAM #
JMP @PRGTAB(0) ;GO TO PROGRAM

;PROGRAM # LOGIC TESTS
PRG0: MOV #STKPTR,X6
MOV #RESTART,RETURN
;TEST1 TEST ABILITY TO REFERENCE ROM WITHOUT TIMING OUT

T1: MOV ROMADD,X0 ;GET ROM ADDRESS
MOV WORDS,X1 ;GET ADDRESS COUNTER
MOV #ERROR1,4 ;SET UP TIME OUT VECTOR
T1A: MOV (0),X3 ;REFERENCE
TST (0)+ ;ROM
ADD -(0),DUMP ;
CMP (0),(0) ;
BITB (0)+,(0)+ ;
RESET ;DELAY
SUB -(0),DUMP
ADD #2,X0 ;INCREMENT POINTER
DEC X1 ;DECREMENT ADDRESS COUNTER
BNE T1A ;BRANCH IF NOT FINISHED
BR T1B ;GO TO SCOPE LOOP
ERROR1: CMP (0)+,(0)+ ;REPOSITION STACK
HLT ;HERE IF ERROR
BR T1A ;LOOP ON ERROR

T1B: SCOPE

```

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;TEST2 TEST THAT ROM DATA CAN BE READ RELIABLY,
001202 016700 177610 T2I MOV ROMADD,X7 ;GET ROM ADDRESS
001206 016701 177560 MOV WORDS,X1 ;GET ADDRESS COUNTER
001212 012767 000000 176564 MOV #6,4 ;INITIALIZE TIME OUT VECTOR
001220 005067 177560 T2A: CLR DUMP ;INITIALIZE DUMP
001224 011003 MOV (0),X3 ;GET DATA
001226 062067 177552 ADD (0)+,DUMP ;ADD DATA TO DUMP
001232 166703 177546 SUB DUMP,X3 ;SUBTRACT DATA FROM DATA
001236 001402 BEQ T2B ;BRANCH IF EQUAL
001240 104000 ERROR2: HLT ;DATA ERROR
001242 000766 BR T2A ;LOOP ON ERROR
001244 000005 T2B: RESET ;DELAY
001246 044067 177532 BIC -(0),DUMP ;CLEAR DUMP BITS
001252 001402 BEQ T2C ;BRANCH IF EQUAL TO 0
001254 104000 HLT ;DATA ERROR
001256 000772 BR T2B ;LOOP ON ERROR
001260 021010 T2C: CMP (0),(0) ;COMPARE DATA
001262 001402 BEQ T2D ;BRANCH IF EQUAL
001264 104000 HLT ;DATA ERROR
001266 000774 BR T2C ;LOOP ON ERROR
001270 122040 T2D: CMPB (0)+,(0) ;COMPARE DATA (BYTE OPERATION)
001272 001402 BEQ T2E ;BRANCH IF EQUAL
001274 104000 HLT ;DATA ERROR
001276 000774 BR T2D ;LOOP ON ERROR
001300 005720 T2E: TST (0)+ ;INCREMENT ADDRESS POINTER
001302 005301 DEC X1 ;DECREMENT ADDRESS COUNTER
001304 001345 BNE T2A ;RETURN IF NOT DONE
001306 104400 SCOPE

```

```

;TEST3 TEST THAT ROM TIMES OUT IF REFERENCED BY OTHER
;THAN DATA BUS CYCLE
001310 012706 000500 T3I MOV #STKPTR,X6 ;SET STACK PTR
001314 016700 177476 MOV ROMADD,X0 ;GET ROM ADDRESS
001320 016701 177454 MOV WORDS,X1 ;GET ADDRESS COUNTER
001324 012767 001340 176452 T3AA: MOV #T3B,4 ;SET UP TIME OUT VECTOR
001332 010010 T3A: MOV X0,(0) ;ATTEMPT TO ALTER DATA
001334 104000 HLT ;HERE IF DID NOT TIME OUT
001336 000775 BR T3A ;LOOP ON ERROR
001340 012767 001356 176436 T3B: MOV #T3D,4 ;SET UP TIME OUT VECTOR
001346 022626 CMP (0)+,(0)+ ;REPOSITION STACK
001350 005210 T3C: INC (0) ;ATTEMPT TO ALTER DATA
001352 104000 HLT ;HERE IF DID NOT TIME OUT
001354 000775 BR T3C ;LOOP ON ERROR
001356 012767 001376 176420 T3D: MOV #T3F,4 ;SET UP TIME OUT VECTOR
001364 022626 CMP (0)+,(0)+ ;REPOSITION STACK
001366 005077 177424 T3E: CLR #ROMADD ;ATTEMPT TO ALTER DATA
001372 104000 HLT ;HERE IF DID NOT TIME OUT
001374 000774 BR T3E ;LOOP ON ERROR
001376 005720 T3F: TST (0)+ ;INCREMENT ADDRESS POINTER
001400 022626 CMP (0)+,(0)+ ;REPOSITION STACK
001402 005301 DEC X1 ;DECREMENT ADDRESS COUNTER

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TEST DZBMC  
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001404 001347  
001406 012737  
001414 104400

000026 000004

BNE T3AA  
MOV #6,004  
SCOPE

;RETURN IF NOT DONE  
;RESTORE TIME OUT TRAP  
;SCOPE LOOP

THIS TEST COMPARES ROM AND IMAGE DATA  
AND TYPES OUT DIFFERENCES

001416	012706	000500	T4I	MOV	#STKPTR,X6	ISET STACK PTR
001422	016701	177352		MOV	WORDS,X1	IGET # OF WORDS
001426	016700	177364		MOV	ROMADD,XR	IGET ROM ADDRESS
001432	016703	177344		MOV	IMAGE,X3	IGET IMAGE ADDRESS
001436	021013		T4B:	CMP	(C),(3)	ICOMPARE DATA
001440	001004			BNE	T4D	
001442	005301		T4C:	DEC	X1	IALL DATA BEEN COMPARED
001444	001437			BEO	T4E	
001446	022023			CMP	(B)+,(3)+	IINCREMENT ADDRESS POINTERS
001450	000772			BR	T4B	
001452	010067	000700	T4D:	MOV	X0,D2BTYP	IATYPE
001456	004767	000676		JSR	7,02A	IRCM ADDRESS
001462	004567	000330		JSR	5,TYPEH	IATYPE
001466	002644			M10		ISEPARATOR
001470	011067	000662		MOV	(0),D2BTYP	IATYPE
001474	004767	000660		JSR	7,02A	IRCM DATA
001500	004567	000312		JSR	5,TYPEH	IATYPE
001504	002560			M0		ICR/LF
001506	010367	000644		MOV	X3,D2BTYP	IATYPE
001512	004767	000642		JSR	7,02A	IIMAGE ADDRESS
001516	004567	000274		JSR	5,TYPEH	IATYPE
001522	002652			M12		ISEPARATOR
001524	011367	000626		MOV	(3),D2BTYP	IATYPE
001530	004767	000624		JSR	7,02A	IIMAGE DATA
001534	004567	000256		JSR	5,TYPEH	IATYPE
001540	002560			M0		ICR/LF
001542	000737			BR	T4C	IGO TO T4C
001544	104400		T4E:	SCOPE		
001546	004567	000244	END:	JSR	5,TYPEH	
001552	002652			M12		
001554	005737	000042		TST	0042	IRETURN TO MONITOR?
001560	001402			BEO	,+6	
001562	013707	000042		MOV	0042,X7	IRETURN TO MONITOR
001566	000167	177314		JMP	PRG0	

THIS PROGRAM TYPES OUT ROM DATA

001572	012706	000500	PRG1:	MOV	#STKPTR,X6	IINITIALIZE STACK
001576	004567	000214		JSR	5,TYPEH	IATYPE MESSAGE
001602	002544			M7		I'ROM DATA'
001604	016701	177170		MOV	WORDS,X1	IGET # OF WORDS
001610	016700	177202	PRG1A:	MOV	ROMADD,X0	IGET STARTING ADDRESS
001614	012702	000012		MOV	#12,X2	IGET ADDRESS INDICATOR
001620	105767	175740		TSTB	TPCSR	IWAIT FOR
001624	100375			BPL	,+4	ITELEPRINTER FLAG

001626	010067	000524		PRG1B1	MOV	X0, DZBTYP	I GET ADDRESS
001632	004767	000522			JSR	7, OZA	I AND TYPE IT
001636	004567	000154			JSR	5, TYPEM	I TYPE
001642	002560				MO		ICR/LF
001644	012067	000506		PRG1C1	MOV	(0)+, DZBTYP	I TYPE
001650	004767	000504			JSR	7, OZA	I DATA
001654	105767	175704			TSTB	TPCSR	I WAIT FOR
001660	100375				BPL	,=4	I TELEPRINTER FLAG
001662	012767	000040	175670		MOV	0', TPOBR	I TYPE SPACE
001670	005301				DEC	X1	I ALL DATA TYPED
001672	001410				BEG	PRG1D	I GO TO FINISH
001674	005302				DEC	X2	
001676	001362				BNE	PRG1C	I RETURN TO PRG1B
001700	012702	000012			MOV	012, X2	I GET ADDRESS INDICATOR
001704	004567	000100			JSR	5, TYPEM	I TYPE
001710	002560				MO		ICR/LF
001712	000745				BR	PRG1B	I RETURN TO PRG1B
001714	000167	177100		PRG1D1	JMP	PRNTRS	I GO GET NEXT TEST
I THIS PROGRAM CYCLES A SINGLE ADDRESS (ADDRESS MUST BE EVEN) TO CHANGE							
I THE ADDRESS TYPE NEW ADDRESS ON THE TTY.							
001720	012706	000500		PRG21	MOV	0STKPTR, X0	I INITIALIZE STACK POINTER
001724	012737	002012	000004		MOV	0PRG2C, 004	I LOAD TRAP ERROR VECTOR
001732	005067	176040			CLR	PSW	I CLEAR PROCESSOR STATUS
001736	012767	001770	176114		MOV	0PRG2A, TKINTA	I LOAD KEYBOARD INTERRUPT VECTOR
001744	012767	000340	176110		MOV	0340, TKINTP	I LOAD KEYBOARD PRIORITY
001752	012767	000100	175600		MOV	0100, TKCSR	I SET INTERRUPT ENABLE BIT
001760	016700	177032			MOV	ROMADD, X0	I GET ROM ADDRESS
001764	005710				TST	(0)	I READ ROM ADDRESS
001766	000776				BR	,=2	I LOOP
001770	004567	000140		PRG2A1	JSR	5, RECD	I GO GET ADDRESS 8
001774	000000			PRG2B1	B		I PUT IT HERE
001776	016700	177772			MOV	PRG2B, X0	
002002	004567	000010			JSR	5, TYPEM	I TYPE
002006	002560				MO		ICR/LF
002010	000002				RTI		I EXIT KEYBOARD INTERRUPT SERVICE
002012	104000			PRG2C1	HLT		I ERROR! DID YOU TYPE AN ODD ADDRESS?
002014	000777				BN	.	I SIT HERE UNTIL CORRECT ADDRESS IS TYPED IN
002016	010026			TYPEM1	MOV	X0, (0)+	I SAVE REGISTER 0
002020	012500				MOV	(5)+, X0	I PLACE MESSAGE ADDRESS IN R0
002022	112067	176764			MOVB	(0)+, TERM	I GET TERMINATOR CHARACTER
002026	112067	176756		TYPEMA1	MOVB	(0)+, CHAR	I GET NEXT CHARACTER
002032	126767	176752	176752		CHPB	CHAR, TERM	I WAS NEXT CHARACTER THE TERM
002040	001005				BNE	TYPEMB	I CHARACTER
002042	014600				MOV	-(0), X0	I RESTORE R0
002044	105767	175514			TSTB	TPCSR	
002050	100375				BPL	,=4	
002052	000205				RTS	5	I AND EXIT
002054	126727	176730	000045	TYPEMB1	CHPB	CHAR, 0'X	I WAS CHARACTER X
002062	001015				BNE	TYPEMC	
002064	105767	175474			TSTB	TPCSR	I TEST TELEPRINTER FLAG

002070	100375			BPL	,=4		IAND WAIT FOR DONE
002072	012767	000215	175460	MOV	0215,TPD9R		ILOAD TELEPRINTER WITH CAR; RET
002100	105767	175460		TSTB	TPCSR		I TEST TELEPRINTER FLAG
002104	100375			BPL	,=4		IAND WAIT FOR DONE
002106	012767	000212	175452	MOV	0212,TPD8R		ILOAD TELEPRINTER WITH LINE FEED
002114	200744			BR	TYPEMA		I GET NEXT CHARACTER
002116	105767	175442		TYPEMC:	TSTB		I TEST TELEPRINTER FLAG
002122	100375			BPL	,=4		IAND WAIT FOR DONE
002124	016767	176660	175434	MOV	CHAR,TPD8R		ILOAD TELEPRINTER BUFFER
002132	000735			BR	TYPEMA		IAND GET NEXT CHARACTER
002134	005015			RECDI:	CLR	(5)	I CLEAR OUT OLD DATA
002136	105767	175416		RECDAI:	TSTB	TKCSR	I TEST KEYBOARD FLAG
002142	100375			BPL	,=4		IAND WAIT FOR CHARACTER
002144	116767	175412	176630	MOV	TKD8R,CHAR		I GET CHARACTER
002152	016767	176632	175400	MOV	CHAR,TPD8R		I ECHO CHARACTER
002160	126727	176624	000215	CHPB	CHAR,0215		I HAS CHARACTER CARRIAGE RETURN
002166	001005			BNE	RECD8		
002170	005725			TST	(5)+		I INCREMENT RETURN ADDRESS
002172	105767	175366		TSTB	TPCSR		
002176	100375			BPL	,=4		
002200	000205			RYS	5		IAND EXIT
002202	042767	177770	176600	RECDBI:	BIC	0177770,CHAR	I STRIP AWAY ALL BUT 3 LSB
002210	006315			ASL	(5)		I ROTATE
002212	006315			ASL	(5)		I PREVIOUS
002214	006315			ASL	(5)		I DATA
002216	056715	176566		BIS	CHAR,(5)		IAND INSERT CHARACTER
002222	000745			BR	RECD8		I GET NEXT CHARACTER
				I SCOPE OR/AND ITERATION LOOP FOR EACH TEST 100,TIMES			
002224	032767	040000	175330	SCOPEC:	BIT	040000,SR	I TEST SR FOR SCOPE
002232	001023			BNE	SCOPE8		I YES SCOPE
002234	032767	004000	175320	BIT	040000,SR		I TEST FOR ITERATION
002242	001027			BNE	SCOPEC		I INHIBIT ITERATION
002244	026767	000020	000022	CHP	SCOPEF,ICOUNT		I ITERATION COMPLETE
002252	001403			BEO	SCOPEC		I ITERATION COMPLETE GO TO SCOPEC
002254	005267	000016		INC	SCOPEF		I INCREMENT ITERATION COUNT
002260	000410			BR	SCOPE8		I GO TO SCOPE8
002262	005067	000010		SCOPEC:	CLR	SCOPEF	I CLEAR ITERATION COUNT
002266	011667	000006		MOV	0X6,RETURN		I GET ADDRESS OF NEXT TEST
002272	000002			RTI			I EXIT
002274	000144			ICOUNT:	100.		
002276	000020			SCOPEF:	0		I CONTAINS SUBTEST ITERATION COUNT
002300	001066			RETURN:	RESTART		
002302	005726			SCOPE8:	TST(6)+		I POP PC
002304	012667	175466		MOV	(6)+,PSW		I RESTORE CONDITION CODES
002310	000177	177764		JMP	0RETURN		
002314	036727	175250	020000	ERROR:	BIT	SR,020000	I INHIBIT PRINTOUT?
002322	001401			BEO	,+4		I BRANCH IF ERROR PRINT OUT
002324	000002			RTI			I RETURN TO TEST
002326	004567	177464		JSR	X5,TYPEH		I TYPE ERROR MESSAGE
002332	002464			ERRORH			I PC
002334	011667	000016		MOV	(6),DZBTYP		I TYPE PROGRAM COUNTER
002340	004767	000014		JSR	7,02A		
002344	005767	175220		TST	SR		I HALT ON ERROR?

TEST DZBMC  
DZBMC

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002350 100001  
002352 000000  
002354 000002

BPL ,04  
HALT  
RTI

I  
IYES HALT  
IRETURN TO TEST

022356	000000		02BTYP: 0		
022360	016746	175200	02A1	MOV	TPCSR,=(6)
022364	010246			MOV	X2,=(6)
022368	010146			MOV	X1,=(6)
022372	010046			MOV	X0,=(6)
022376	016700	177760		MOV	02BTYP,X2
022380	012701	000000		MOV	#0,X1
022400	005002			CLR	X2
022404	006100			ROL	X0
022408	006102			ROL	X2
022412	002702	000260	02AA1	ADD	#260,X2
022416	105767	175144		TSTB	TPCSR
022420	100375			BPL	,=4
022424	010267	175140		MOV	X2,TPDR
022428	005002			CLR	X2
022432	006100			ROL	X0
022436	006102			ROL	X2
022440	006100			ROL	X0
022444	006102			ROL	X2
022448	006100			ROL	X0
022452	006102			ROL	X2
022456	005301			DEC	X1
022460	001360			BNE	02AA
022464	012600			MOV	(6)+,X0
022468	012601			MOV	(6)+,X1
022472	012602			MOV	(6)+,X2
022476	012667	175142		MOV	(6)+,TPCSR
022480	000207			RTS	7

```

ISAVE TPCSR
ISAVE R2
ISAVE R1
ISAVE R0
IGET DATA TO BE TYPED
IGET COUNTER
ICLEAR WORKING REGISTER
IMOV FIRST BIT (MSB) INTO
IR2
IFORM ASCII CODE
ITEST TELEPRINTER
IFLAG AND WAIT UNTIL DONE
ILOAD TELEPRINTER BUFFER
ICLEAR WORKING REGISTER
IROTATE THE
INEXT
IOCTAL CHARACTER
IINTO
IREGISTER
ITWO
IDECREMENT COUNTER
IGO TO 02AA IF NOT 0
IFINISHED, RESTORE REGISTERS
I
IAND TPCSR
IAND EXIT

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ASCII MESSAGES

022464	022500	030042	030503			ERROR: ,ASCII '0X PC= 0'
022472	040040					
022474	022500	034524	042520	M51	,ASCII	'0XTYPE MATRIX STARTING ADDRESS 0'
022522	046440	032101	044522			
022510	020130	032123	051101			
022516	044524	043516	040440			
022524	042124	042522	051523			
022532	040040					
022534	022500	051122	021507	M61	,ASCII	'0XPRG=00'
022542	040075					
022544	022500	047522	020119	M71	,ASCII	'0XRCH DATA0'
022552	040504	040524	040049			
022560	022500	100		M81	,ASCII	'0X0'
022563	100	051045	046517	M91	,ASCII	'0XRCH ADDRESS/IMAGE ADDRESS ROM DATA=IMAGE DATA0'
022570	040440	042104	042522			
022576	051523	044457	040519			
022604	042507	040440	042104			
022612	042522	051523	051040			
022620	046517	042040	052101			
022626	025101	046511	043501			
022634	020109	040504	040524			
022642	040045					
022644	027500	100		M121	,ASCII	'0/0'
022647	100	040040		M111	,ASCII	'0 0'
022652	025100	122		M12:	,ASCII	'000'

TEST DZBMC  
DZBMC

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	003776		,03776
003776	000000		,WORD
			DATA CUT INTO THE M792YC
004000	000005		000005
004002	012700	177160	012700,177160
004006	010001		010001
004010	032721	001400	032721,001400
004014	001371		001371
004016	005210		005210
004020	005003		005003
004022	005004		005004
004024	031027	040000	031027,040000
004030	001372		001372
004032	105710		105710
004034	100373		100373
004036	000303		000303
004040	191103		191103
004042	005104		005104
004044	100772		100772
004046	121761	000001	121761,000001
004052	001405		001405
004054	003002		003002
004056	010302		010302
004060	000757		000757
004062	010322		010322
004064	000755		000755
004066	031027	040000	031027,040000
004072	001775		001775
004074	000005		000005
004076	000113		000113
	000001		,END



CHAR	001010	DUMP	001004	DZBTYP	002356	END	001546
ERROR	002314	ERRORM	002404	ERROR1	001172	ERROR2	001240
HLT	= 104000	ICOUNT	002274	IMAGE	001002	LAST	001000
M10	002644	M11	002647	M12	002692	M5	002474
M6	002534	M7	002544	M8	002560	M9	002563
O2A	002360	O2AA	002410	PRGNUM	001050	PRGTAB	001020
PRGB	001100	PRG1	001572	PRG1A	001610	PRG19	001626
PRG1C	001644	PRG1D	001714	PRG2	001720	PRG2A	001770
PRG2B	001774	PRG2C	002012	PRMTRS	001020	PSW	= 177776
RECD	002134	RECDA	002136	RECOB	002202	RESTAR	001066
RETURN	002300	ROMADD	001016	SCOPE	= 104400	SCOPEB	002302
SCOPEC	002224	SCOPEF	002276	SCOPEG	002262	SR	= 177570
SRT	001014	START1	000200	START3	000210	STKPTR	= 000500
TERM	001012	TKCSR	= 177560	TKDBR	= 177562	TKINTA	= 000060
TKINTP	= 000062	TPCSR	= 177564	TPDBR	= 177560	TYPEM	002010
TYPEMA	002026	TYPEMB	002054	TYPEMC	002110	T1	001120
T1A	001136	T10	001200	T2	001202	T2A	001220
T2B	001244	T2C	001200	T2D	001270	T2E	001300
T3	001310	T3A	001332	T3AA	001324	T30	001340
T3C	001350	T3D	001356	T3E	001360	T3F	001376
T4	001410	T4B	001436	T4C	001442	T40	001452
T4E	001544	WORDS	001000	,	= 004100		

ERRORS DETECTED: 0